

REMARKS

The Office Action mailed December 2, 2008, has been received and reviewed. Claims 1 through 4, 8 and 30 through 32 are currently pending in the application. Claims 1 through 4, and 8 stand rejected. Claims 30 through 32 are newly added and withdrawn. Applicant has amended claims 1 through 4, and respectfully requests reconsideration of the application as amended herein.

Applicants note that newly added claims 30 through 32, which depend from claim 1, are based on originally filed claims 5 through 7, which were withdrawn and then inadvertently cancelled. As claims 30 through 32 are directed to nonelected species, they have been withdrawn from consideration, but should be allowed upon the allowance of independent claim 1, from which they depend.

Applicants additionally note, support for the amendments of claim 1 can be found at least at paragraphs [0036], [0037], [0054], [0055], [0057], [0059] and [0065], as well as FIGS. 4 through 7 and 10, in the as-filed specification.

35 U.S.C. § 102(b) Anticipation Rejections

Anticipation Rejection Based on U.S. Patent No. 6,319,317 to Takamori

Claims 1 through 3, and 8 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Takamori (U.S. Patent No. 6,319,317). Applicant respectfully traverses this rejection, as hereinafter set forth.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Unless a single prior art reference describes “all of the limitations claimed” **and** “all of the limitations **arranged or combined in the same way** as recited in the claim, it cannot be said to prove prior invention of the thing claimed and, thus, cannot anticipate under 35 U.S.C. § 102.” *Net MoneyIN Inc. v. VeriSign Inc.*, No. 07-1565, slip op. at 17-18 (Fed. Cir. Oct. 20, 2008)

(emphasis added). A single prior art reference must “clearly and unequivocally” describe the claimed invention “without *any* need for picking, choosing, and combining various disclosures not directly related to each other by the teachings of the cited reference.” *Id.* at 19 (*quoting In re Arkley*, 455 F.2d 586, 587 (C.C.P.A. 1972)).

Applicant respectfully asserts that independent claim 1 is not anticipated by Takamori under 35 U.S.C. § 102(b) because Takamori does not describe each and every element of independent claim 1, as currently amended. In particular, Takamori does not describe a “system for selectively depositing a material on a previously formed workpiece, comprising: a platform sized and configured to support the workpiece, the workpiece including at least one semiconductor die, during a deposition process; a deposition system configured to deposit at least one layer of unconsolidated material on the workpiece to a specific thickness; a sensing system configured to measure a level of an upper surface of the workpiece and a surface level of the at least one layer of unconsolidated material deposited thereon; and a selective material consolidation system configured to at least partially consolidate a selected portion of the at least one layer of unconsolidated material,” as recited in independent claim 1.

Takamori describes a resist coating unit (COT) that includes a spin chuck 52, which is rotationally driven and is capable of being secured to a wafer W. *Takamori*, at col. 7, lines 22-24. A resist solution supply nozzle 86 is also provided for supplying a resist solution onto the front face of the wafer W. *Id.* at col. 7, lines 43-45. Directly above the wafer W is a detection sensor 105 for “detecting a spreading state of an outline of the outer periphery of the resist solution when the resist solution is discharged onto almost the center of the rotated wafer W and the resist solution spreads out from almost the center of the wafer W toward the outer edge.” *Id.* at col. 8, lines 29-35. An example of this detecting sensor 105 is a CCD camera. *Id.* at col. 8, lines 35-37. However, Takamori does not describe each and every element of independent claim 1. For example, Takamori does not describe a system comprising “a selective material consolidation system configured to at least partially consolidate a selected portion of the at least one layer of unconsolidated material,” as recited in claim 1, as currently amended.

As Takamori does not describe a “system for selectively depositing a material on a previously formed workpiece, comprising: a platform sized and configured to support the

workpiece, the workpiece including at least one semiconductor die, during a deposition process; a deposition system configured to deposit at least one layer of unconsolidated material on the workpiece to a specific thickness; a sensing system configured to measure a level of an upper surface of the workpiece and a surface level of the at least one layer of unconsolidated material deposited thereon; and a selective material consolidation system configured to at least partially consolidate a selected portion of the at least one layer of unconsolidated material,” as recited in independent claim 1, Applicant asserts that claim 1 is not anticipated by Takamori and respectfully requests that the Examiner withdraw the rejection of independent claim 1 under 35 U.S.C. § 102(b).

Applicant additionally asserts that each of dependent claims 2 through 4 and 8 is allowable at least because each depends from claim 1, which is allowable. Therefore, Applicant asserts that claims 2 through 4 and 8 are not anticipated by Takamori and respectfully requests that the Examiner withdraw the rejection of dependent claims 2 through 4 and 8 under 35 U.S.C. § 102(b).

35 U.S.C. § 103(a) Obviousness Rejections

To establish a *prima facie* case of obviousness the prior art reference (or references when combined) **must teach or suggest all the claim limitations**. *In re Royka*, 490 F.2d 981, 985 (CCPA 1974); *see also* MPEP § 2143.03. Additionally, there must be “a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements” in the manner claimed. *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1742, 167 L.Ed.2d 705, 75 USLW 4289, 82 U.S.P.Q.2d 1385 (2007). Finally, to establish a *prima facie* case of obviousness there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986). Furthermore, the reason that would have prompted the combination and the reasonable expectation of success must be found in the prior art, common knowledge, or the nature of the problem itself, and not based on the Applicant’s disclosure. *DyStar Textilfarben GmbH & Co. Deutschland KG v. C. H. Patrick Co.*, 464 F.3d 1356, 1367 (Fed. Cir. 2006); MPEP § 2144. Underlying the obvious determination is the fact that statutorily prohibited hindsight cannot be used. *KSR*, 127 S.Ct. at 1742; *DyStar*, 464 F.3d at 1367.

Obviousness Rejection Based on U.S. Patent No. 6,319,317 to Takamori and U.S. Patent No. 6,270,579 to Subramanian

Claims 1 through 3 and 8 were alternatively rejected under 35 U.S.C. § 103(a) as being unpatentable over Takamori (U.S. Patent No. 6,319,317) and Subramanian et al. (U.S. Patent No. 6,270,579; hereinafter “Subramanian”). Applicant respectfully traverses this rejection, as hereinafter set forth.

Applicant respectfully asserts that claims 1 through 3 and 8 could not have been obvious to a person of ordinary skill in the art at the time the invention was made considering Takamori in view of Subramanian because Takamori and Subramanian, when combined, do not teach or suggest a “system for selectively depositing a material on a previously formed workpiece, comprising: a platform sized and configured to support the workpiece, the workpiece including at least one semiconductor die, during a deposition process; a deposition system configured to deposit at least one layer of unconsolidated material on the workpiece to a specific thickness; a sensing system configured to measure a level of an upper surface of the workpiece and a surface level of the at least one layer of unconsolidated material deposited thereon; and a selective material consolidation system configured to at least partially consolidate a selected portion of the at least one layer of unconsolidated material,” as recited in independent claim 1 as currently amended.

Takamori teaches a resist coating unit (COT) that includes a spin chuck 52, which is rotationally driven and is capable of being secured to a wafer W. *Takamori*, at col. 7, lines 22-24. A resist solution supply nozzle 86 is also provided for supplying a resist solution onto the front face of the wafer W. *Id.* at col. 7, lines 43-45. Directly above the wafer W is a detection sensor 105 for “detecting a spreading state of an outline of the outer periphery of the resist solution when the resist solution is discharged onto almost the center of the rotated wafer W and the resist solution spreads out from almost the center of the wafer W toward the outer edge.” *Id.* at col. 8, lines 29-35. An example of this detecting sensor 105 is a CCD camera. *Id.* at col. 8, lines 35-37. However, Takamori does not teach or suggest each and every element of independent claim 1. For example, Takamori does not teach or suggest a system comprising “a selective material consolidation system configured to at least partially consolidate a selected

portion of the at least one layer of unconsolidated material,” as recited in claim 1, as currently amended.

Subramanian teaches a method for the application of a uniform layer of developer material on a photoresist material layer. *Subramanian* abstract. A test wafer 52 with the photoresist material layer 50 is rotated on a rotating chuck 54. *Id.* at col. 9, lines 8-11. A nozzle 40 is moved over the center of the photoresist material layer 50 and moves along a predetermined two dimensional path while applying developer. *Id.* at col. 9, lines 13-17. The motor is then stopped and waits a predetermined amount of time until the developing of the photoresist material layer 50 is complete. *Id.* at col. 9, lines 18-22. The remaining developer is spun off. *Id.* at col. 9, lines 22-23. In the alternative, the remaining developer could be rinsed off with water or another solution. *Id.* at col. 9, lines 24-26. After the photoresist material layer 50 is completed, a measuring system 72 measures the thickness of the layer at various locations on the wafer 52. *Id.* at col. 9, lines 27-29. A “processor 64 compares the measured thickness uniformity with the desired thickness uniformity and determines whether or not the proper thickness uniformity has been achieved within predefined tolerances.” *Id.* at col. 9, lines 30-33. However, Subramanian does not teach or suggest each and every element of independent claim 1. For example, Subramanian does not teach or suggest a system comprising “a selective material consolidation system configured to at least partially consolidate a selected portion of the at least one layer of unconsolidated material,” as recited in claim 1, as currently amended.

As Takamori and Subramanian, when combined, do not teach or suggest a “system for selectively depositing a material on a previously formed workpiece, comprising: a platform sized and configured to support the workpiece, the workpiece including at least one semiconductor die, during a deposition process; a deposition system configured to deposit at least one layer of unconsolidated material on the workpiece to a specific thickness; a sensing system configured to measure a level of an upper surface of the workpiece and a surface level of the at least one layer of unconsolidated material deposited thereon; and a selective material consolidation system configured to at least partially consolidate a selected portion of the at least one layer of unconsolidated material,” as recited in independent claim 1 as currently amended, Applicant respectfully asserts that independent claim 1 could not have been obvious to a person of ordinary

skill in the art at the time the invention was made considering Takamori in view of Subramanian, and requests that the Examiner withdraw the rejection of independent claim 1 under 35 U.S.C. § 103(a).

Furthermore, the nonobviousness of independent claim 1 precludes a rejection of claims 2, 3 and 8, which depend therefrom, because a dependent claim is obvious only if the independent claim from which it depends is obvious. *See In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988), *see also* MPEP § 2143.03. Therefore, Applicant requests that the Examiner withdraw the 35 U.S.C. § 103(a) obviousness rejection to claims 2, 3 and 8, in addition to the rejection to independent claim 1.

Obviousness Rejection Based on U.S. Patent No. 6,319,317 to Takamori or U.S. Patent No. 6,319,317 to Takamori and U.S. Patent No. 6,270,579 to Subramanian et al. and further in view of U.S. Patent No. 6,642,155 to Whitman

Claim 4 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Takamori (U.S. Patent No. 6,319,317) or Takamori (U.S. Patent No. 6,319,317) and Subramanian et al. (U.S. Patent No. 6,270,579; hereinafter “Subramanian”) as applied to claims 1-3 and 8 and further in view of Whitman et al. (U.S. Patent No. 6,642,155; hereinafter “Whitman”).

Applicant respectfully asserts that claim 4 could not have been obvious to a person of ordinary skill in the art at the time the invention was made considering Takamori, or Takamori in view of Subramanian and further in view of Whitman, because Takamori, Subramanian and Whitman, when combined, do not teach or suggest a “system for selectively depositing a material on a previously formed workpiece, comprising: a platform sized and configured to support the workpiece, the workpiece including at least one semiconductor die, during a deposition process; a deposition system configured to deposit at least one layer of unconsolidated material on the workpiece to a specific thickness; a sensing system configured to measure a level of an upper surface of the workpiece and a surface level of the at least one layer of unconsolidated material deposited thereon; and a selective material consolidation system configured to at least partially consolidate a selected portion of the at least one layer of unconsolidated material,” as recited in amended independent claim 1, from which claim 4 depends.

The teachings of Takamori and Subramanian are summarized above.

Whitman does not cure the deficiencies of Takamori and Subramanian. For example, Whitman does not teach or suggest a system comprising “a selective material consolidation system configured to at least partially consolidate a selected portion of the at least one layer of unconsolidated material,” as recited in claim 1, as currently amended.

As Takamori, Subramanian and Whitman, when combined, do not teach or suggest a “system for selectively depositing a material on a previously formed workpiece, comprising: a platform sized and configured to support the workpiece, the workpiece including at least one semiconductor die, during a deposition process; a deposition system configured to deposit at least one layer of unconsolidated material on the workpiece to a specific thickness; a sensing system configured to measure a level of an upper surface of the workpiece and a surface level of the at least one layer of unconsolidated material deposited thereon; and a selective material consolidation system configured to at least partially consolidate a selected portion of the at least one layer of unconsolidated material,” as recited in independent claim 1 as currently amended, Applicant respectfully asserts that independent claim 1 could not have been obvious to a person of ordinary skill in the art at the time the invention was made considering Takamori, or Takamori in view of Subramanian and in further view of Whitman. Furthermore, the nonobviousness of independent claim 1 precludes a rejection of claim 4, which depend therefrom, because a dependent claim is obvious only if the independent claim from which it depends is obvious. *See In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988), *see also* MPEP § 2143.03. Therefore, Applicant requests that the Examiner withdraw the 35 U.S.C. § 103(a) obviousness rejection to claim 4.

ENTRY OF AMENDMENTS

The amendments to claims 1 through 4 and the newly added claims 30 through 32 above should be entered by the Examiner because the amendments and newly added claims are supported by the as-filed specification and drawings and do not add any new matter to the application.

CONCLUSION

Claims 1 through 4, 8 and 30 through 32 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, the Examiner is respectfully invited to contact Applicant's undersigned attorney.

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